

2013 Convention

new solutions for a new world

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ACTUARIAL
SOCIETY
OF SOUTH AFRICA

Swapping your funding basis

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Agenda

1. Purpose and structure of paper
2. Understanding a DBO
3. Funding strategy for a DBO
4. Investment strategy for DBO
5. The discount rate assumption
6. Wider discussions
7. Numerical example
8. Questions

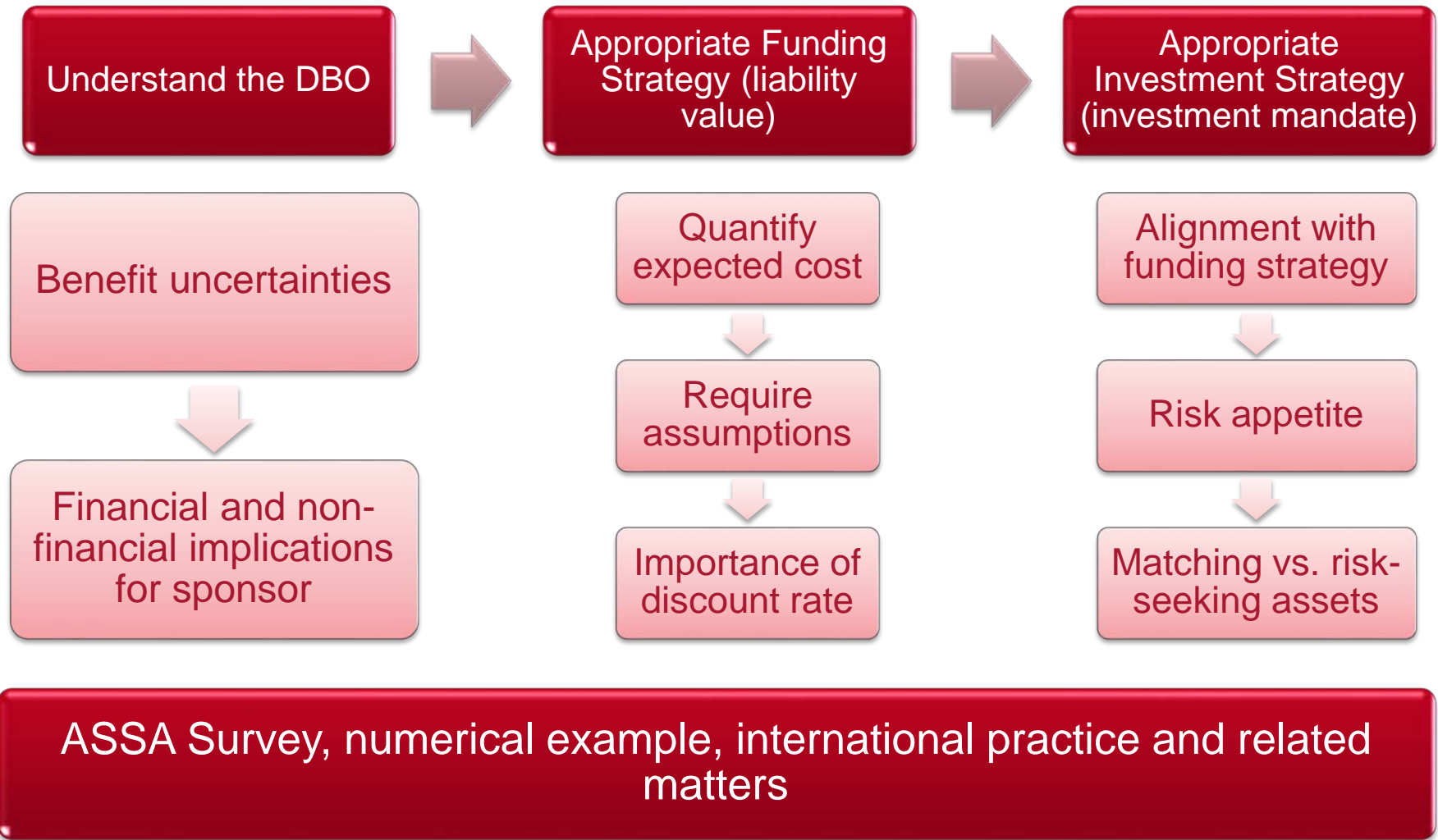
Purpose of paper

- Companies with defined benefit obligations (DBO)



- Focus on factors to consider for an appropriate discount rate
- Important to note:
 - Not promoting any specific discount rate
 - Framework for factors to consider
 - Contribution to the ongoing conversation in the actuarial community

Structure of paper



Understanding the DBO

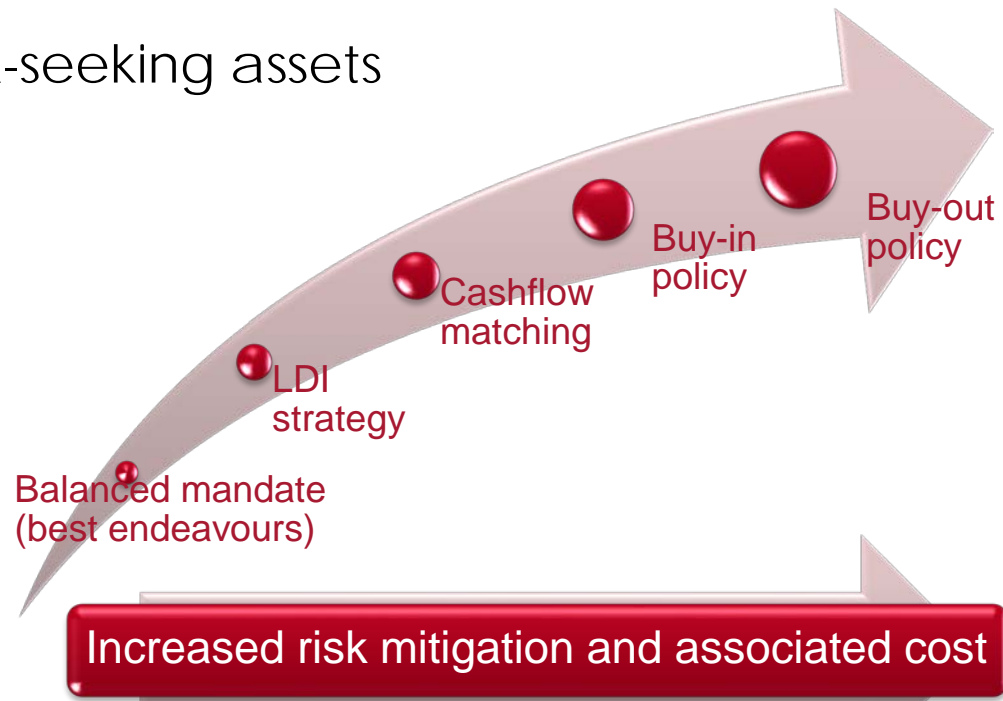
- Understand benefit formula and inputs
- Uncertainty implied by benefit design
- Cost uncertainty
- Implications for sponsor:
 - Sponsor covenant
 - Legal obligation (employment contract)
 - Balance sheet volatility
 - Overall risk matrix and investment strategy of sponsor

Funding strategy for the DBO

- Funding strategy aims to quantify uncertain costs
- Require various assumptions to address benefit uncertainties
- Importance of discount rate:
 - Purpose and context
 - Assets vs. liabilities debate
 - Future life expectancy of DBO

Investment strategy for the DBO

- Degree of (optimal) alignment with funding strategy
- Misalignment can increase financial volatility via risks
- Understand associated risk: rewarded vs. unrewarded risk
- Matching vs. risk-seeking assets



Discount rate: Legislation

- IAS19, Pension Funds Act (PFA), BN 37 of 2007, SAP201
- Challenge in interpreting differences
- Feedback from ASSA Survey (105 participants)
 - 60% in favour of greater consistency between IAS19 and PFA
 - 65% view PFA as more realistic estimate of expected cost
 - 50% in favour of IAS19 to allow for interest rate swaps

Main views expressed in ASSA Survey:

- * IAS19 too restrictive and perhaps not suited for current market conditions
- * PFA allows valuator to take into account the invested assets
- * PFA allows for more accurate estimation of expected cost

Discount rate: The risk-free rate

- Theoretical concept
- Two observable market rates: bonds vs. swaps
- Funded basis (bonds) vs. Unfunded basis (swaps)
 - Bond rates comparable to swap rates + funding spread (net of credit risk)
- Feedback from survey:
 - 50% of respondents believed IAS19 should allow use of swaps
 - 50% in favour of bonds, 25% in favour of swaps
 - 100% used bonds as the discount rate, main reason being that most believed discount rate should be linked to underlying assets (basis risk)

Determining the risk-free rate: Challenges

- Both instruments not risk-free under all circumstances
- Bonds: term structure difficult to construct
- Insufficient instruments in long end – extrapolation
- Bonds: technical bias
- Geographical areas, i.e. currency mismatch

Risk-free rate: Characteristics

Characteristic	Description
1. Observable	Observable in open market, increases transparency
2. Objective	No bias in curves
3. No/low credit risk	Definition of risk-free rate
4. Liquidity across term structure	Execution of deals, particularly large transactions
5. Arm's length transaction	Should reflect fair value that liability can be traded at
6. Reliability/Liquidity – stressed market conditions	Remain liquid during stressed market conditions
7. Level of extrapolation	Higher number of market observable rates at long-dated terms
8. Level of interpolation	Higher number of market observable rates across term structure

- Technical Provisions task group for Solvency and Assessment Management(SAM): Pillar I

Risk-free rate: Bond vs. Swaps

- Current SA inflation-linked market

Characteristic	Government inflation-linked bonds	Inflation-linked interest rate swaps (collateralised)
1. Observable	High	Medium
2. Objective	High	Medium
3. No/low credit risk	High	High
4. Liquidity across term structure	Medium	Medium/Low
5. Arm's length transaction	Medium	High
6. Reliability/Liquidity – stressed market conditions	Medium	Low
7. Level of extrapolation	Medium	Medium
8. Level of interpolation	Medium	High

Discount rate: Methodologies

- Top-down approach: based on assets
 - Starting point: market rate representing fund's investment portfolio
 - Premium adjustments made for asset risks/characteristics
- Bottom-up approach: based on liabilities
 - Starting point: risk-free rate
 - Premium adjustments made for liability risks/characteristics
- Adjustments: credit risk, liquidity risk, equity risk, diversification
- In SA, bottom-up approach (i.e. risk-free rate + equity/illiquidity premium) preferred
- Theoretically same result, not necessarily in practice
- Point vs. Curve

Wider Discussion (SAM and Solvency II)

- Setting the discount rate for life insurance liabilities
- SAM (SA):
 - Initially swap rate proposed as risk-free rate
 - QIS3: Bond rate with no adjustment
- Solvency II (UK):
 - Early stages (QIS3 and QIS4): government bonds proposed as risk-free
 - Current proposal: swap rates net of credit risk
- Still ongoing debate under both regimes

Wider discussion (International)

- What do other countries do?
- USA: public vs. corporate fund; reference to assets
- UK: funding strategy influenced by sponsor's financial strength; various prescribed valuation bases exist
- Netherlands: compulsory to use interbank swap yield
- Denmark: one discount curve for all funds
- European Union: market values from trading insurance and pension liabilities

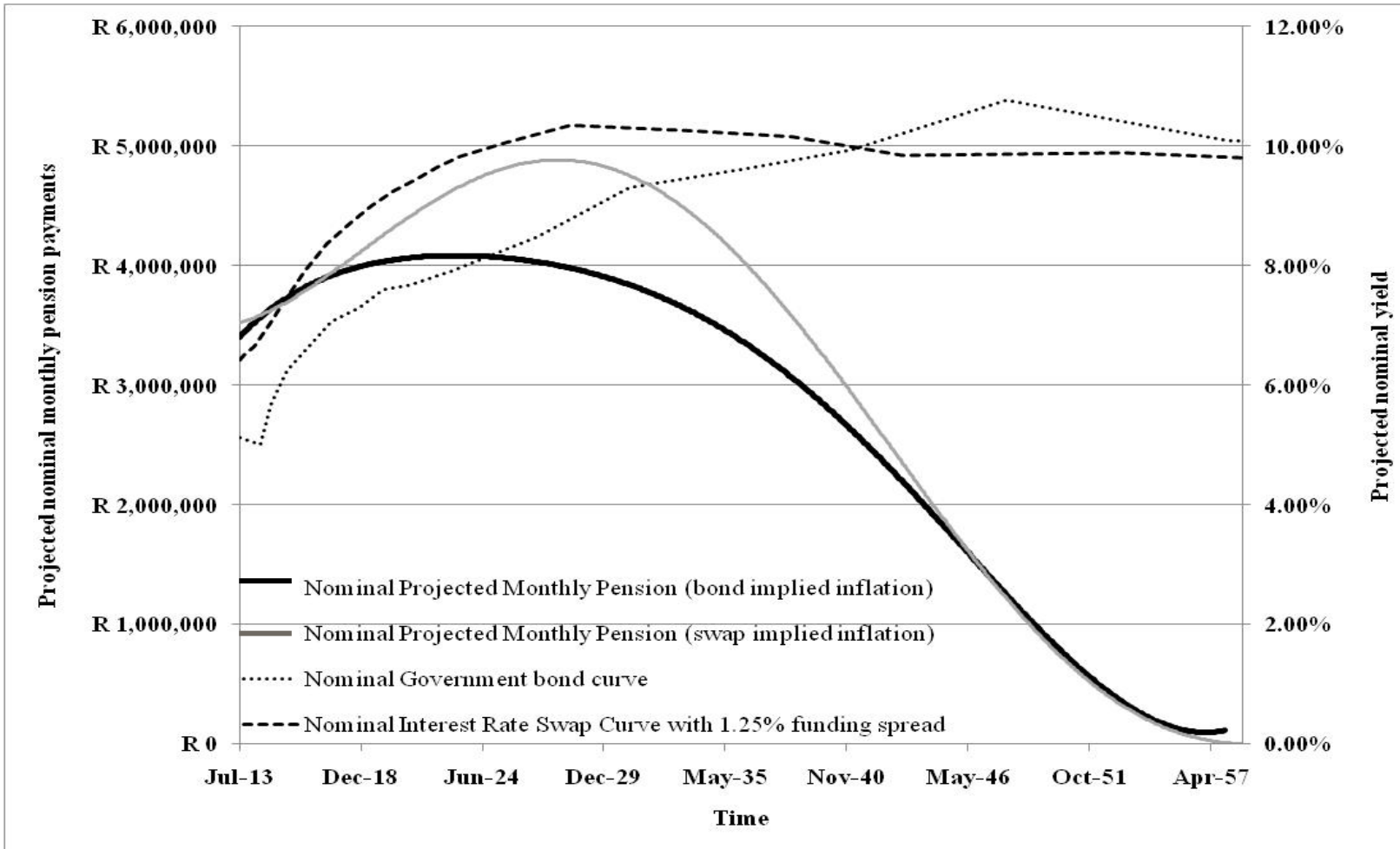
Numerical example

- Notional pensioner membership was considered
- To make the various discussion points more tangible and practical

Funding strategy	Government Bond	Interest Rate Swap
Legislation / accounting	IAS19	Board Notice 37 of PFA
Inflation assumption	Government Bond (GB) market implied inflation	Interest Rate Swap (IRS) market implied inflation
Discount rate	Expected nominal GB curve	Expected nominal IRS curve plus 1.25% illiquidity premium allowance
Implied real discount rate	Inflation linked GB yield curve	Inflation linked IRS curve with 1.25% illiquidity premium allowance
Value of liability (1 Jul'13)	R513 mil	R503 mil
Increase due to 1% reduction in discount rate	9.6%	9.5%
Decrease due to 1% increase in discount rate	-8.0%	-8.2%

Numerical example

- Term structure of cashflows and nominal discount rates



QUESTIONS